

panded. The stamens are equal, hairy and slightly arched at their origin, slender, smooth, and erect above; the anthers connive around the included stigma, and are oblong, cordate and apiculated; like those of *Hyoscyamus*, they are articulated upon a prominence of the dorsal connective. The ovarium is seated upon a short hypogynous gland with two prominent lobes, opposite the furrows of the dissepiment; these lobes remain after the growth of the ovarium, but the gland itself soon disappears. The stigma is capitate, somewhat 2-lobed, and covered with numerous viscose papillæ. I observed the fruit of a specimen in M. de Boissier's herbarium (*M. microcarpa* from Malaga); here the persistent calyx preserves the same form, the tube growing to a diameter of 7 lines and a length of 6 lines, while the erect lobes in addition are 9 lines long; it is membranaceous, reticulated, and incloses an oval berry crowned with the persistent style, being 7 lines long and 5 or 6 lines in diameter; the seeds are flat, reniform, oval, and about $1\frac{1}{2}$ line long*.

VI.—*Descriptions of Aphides*. By FRANCIS WALKER, F.L.S.

[Continued from vol. v. p. 395.]

86. *Aphis Viburni*.

Aphis Viburni, Fabr. Syst. Ent. 737. 18; Sp. ii. 386. 23; Ent. Syst. iv. 216. 28; Syst. Rhyn. 298. 28; Gmel. ed. Syst. Nat. i. 2208; Sulz. pl. 11. fig. 1, 2; Scop. Ent. Carn. 396; Schrank, Faun. Boic. ii. 111. 1203; Stew. El. ii. 111; Enc. Meth. Ins. pl. 115. fig. 9; Sir Oswald Mosley, Gard. Chron. i. 684; Rusticus, Ent. Mag. i. 218.

Viburnifex, Amyot, Ann. Soc. Ent. Fr. 2^{de} série, v. 478.

This species feeds on *Viburnum Opulus* and *V. lantana* from March till November.

The viviparous wingless female. It is hatched in the beginning of March, and is then linear, very small, and of a dull dark green colour, paler beneath; sometimes it has dark bands across the back: the feelers and the legs are black, short, and stout: the eyes, the mouth, and the nectaries are also black. The young ones in the middle of April are pale green, spindle-shaped, slightly convex, not shining: the feelers are hardly half the length of the body; their tips, the tip of the mouth, and the eyes are black: the abdomen is pale orange around the base of the nectaries, which are nearly one-sixth of the length of the

* An analysis of the generic features of this genus will be given in one of the supplementary plates to vol. ii. of the 'Illustr. South Amer. Plants.'

body. The body is elliptical, convex, plump, velvet-like, very dark olive-green, and covered with a white bloom: the feelers are black, pale yellow at the base, and not more than one-fourth of the length of the body: the nectaries are not more than one-twelfth of the length of the body: the legs are black, short and stout; the shanks except their tips are pale yellow. In the middle of April it may often be seen sitting under a leaf surrounded by its offspring, which have comparatively pale and flat bodies: it disappears in the beginning of July, and returns again in the autumn.

1st var. The body is black.

The viviparous winged female. While a pupa the body is black, and has a row of transverse white spots on each side of the abdomen: the feelers are more than half the length of the body: the nectaries are about one-tenth of the length of the body: the legs are moderately long; the fore-thighs and the shanks except their tips are white: the wings are unfolded before the middle of May, and are, as usual, at first milk-white, and afterwards become colourless, and very much longer than the body; the wing-ribs are very pale green, or almost white; the brands are dull buff; the veins are pale brown.

1st var. The body is black: the feelers are rather shorter than the body: the mouth is dull yellow towards the base: the nectaries are about one-sixth of the length of the body: the shanks are very dark yellow with black tips; the fore-thighs are yellow at the base: the wings are slightly tinged with gray; the wing-ribs, the brands, and the veins are brown.

The oviparous wingless female. The body is elliptical, convex, shining, pale yellow: the feelers are pale yellow, black towards the tips, and rather less than half the length of the body: the mouth is pale yellow; its tip and the eyes are black: the nectaries are black, and hardly one-sixth of the length of the body: the legs are pale yellow; the knees, the feet, and the tips of the shanks are black; the hind-shanks are broad.

1st var. The body is tinged with green.

2nd var. The body is tinged with red.

3rd var. The body is pale red.

4th var. With six rows of black spots on the back.

5th var. With a large red spot at the base of each nectary.

6th var. The head is pale gray.

7th var. The hind-shanks are pale brown.

8th var. The tip of the abdomen is black.

The oviparous wingless female? The body is small, oval, slightly convex, very deep black with a slight white bloom, and it has a rim on each side of the body: the abdomen is tapering towards the tip: the feelers are black, white towards the base, and full

half the length of the body : the mouth is paler towards the base : the nectaries are about one-tenth of the length of the body : the legs are dull white ; the knees, the feet, and the tips of the shanks are black ; the hind-legs are dark gray, and are very broad. In the beginning of November.

The winged male. The body is black : the fore-border and the hind-border of the fore-chest are very dark yellow : the feelers are black, rather thick till near their tips, and nearly as long as the body : the mouth is black, dark yellow towards the base : the nectaries are black, and full one-sixth of the length of the body ; the legs are black ; the fore-thighs are dark yellow at the base : the wings are slightly gray, and very much longer than the body ; the wing-ribs are yellow ; the brands are pale brown ; the veins are brown. It appears in the beginning of November, and then pairs with the yellow female before mentioned.

Length of the body $\frac{1}{2}$ – $\frac{3}{4}$ line ; of the wings $1\frac{1}{2}$ –2 lines.

In the spring these *Aphides* dwell in clusters on the stalks of the guelder rose buds which open and inclose them with a snowy drapery ; in the autumn they multiply when the tree is adorned with clusters of red shining berries ; and November, when the leaves assume a bright scarlet hue, is the egg-laying epoch. The leaves of the wayfaring tree on which it feeds in the spring curl up, and protect it from injury.

87. *Aphis Xylostei*, Schrank.

Aphis Xylostei, Schrank, Faun. Boic. ii. 1. 107 ; Reaum. Ins. iii. 286 ; Deg. Ins. iii. 96. 16. pl. 7. fig. 8–13 ; Gmel. ed. Syst. Nat. i. 2210 ; Fonscol. Ann. Soc. Ent. x. 167. 6.

A. Lonicerae, Sir Oswald Mosley, Gard. Chron. i. 628.

Xylosthaphis, Amyot, Ann. Soc. Ent. Fr. 2^{de} série, v. 479.

The viviparous wingless female. The body is small, oval, rather flat, pale green, covered with white powder : the head is darker : the feelers are very pale, but darker at the base and at the tips, shorter than the body : the mouth is pale yellow ; its tip and the eyes are black : the nectaries are black, and about one-sixth of the length of the body : the tube at the tip of the abdomen is pale yellow : the legs are pale yellow ; the hips and the hind-thighs are darker ; the feet and the tips of the shanks are black.

1st var. The thighs are nearly all black.

The viviparous winged female. The body is green : the head, the chest, the breast, the feelers, the nectaries, and the legs are black ; the shanks and the fore-thighs excepting their tips are pale yellow.

88. *Aphis Cerasina*, n. s.

The viviparous wingless female. The body is rather small, elliptical, flat, greenish yellow with two irregular black lines on

each side of the abdomen: there is a row of small tubercles on each side of the body: the feelers are pale yellow, black towards the tips, and not half the length of the body: the mouth is pale yellow; its tip and the eyes are black: the nectaries are white, and not one-fifth of the length of the body: the legs are yellow and rather short; the knees are brown; the feet and the tips of the shanks are black.

1st var. The body is pale yellow.

2nd var. The body is pale yellow with two large green spots on each side of the abdomen.

Found on *Cerasus Avius*, the wild cherry, near Carlisle in the middle of November.

89. *Aphis Carduina*, n. s.

The viviparous wingless female. The body is rather small, oval, somewhat flat, pale green: the front is narrow and rather bristly, and has a tubercle on each side: the feelers are yellow, and much longer than the body; the tips of the joints are black: the first and the second joints are angular; the fourth is much shorter than the third; the fifth is as long as the fourth; the sixth is not half the length of the fifth; the seventh is about four times the length of the sixth: the mouth is pale yellow; its tip and the eyes are black: the tube at the tip of the abdomen is short: the nectaries are pale green with black tips, and nearly one-fourth of the length of the body: the legs are long and pale yellow; the knees, the feet, and the tips of the shanks are black. In the beginning of November.

The viviparous winged female. It is like the wingless insect in colour, but somewhat darker about the chest: the wings are colourless, and much longer than the body; the second vein diverges from the first, but is nearly parallel to the third; the second fork of the latter begins a little after one-third of the length of the vein, and its lower branch converges slightly towards the second vein; the second fork is beyond two-thirds of the length; the fourth vein is curved moderately and equally throughout its length, and the angle of the brand whence it springs is very slight.

Length of the body $\frac{1}{2}$ line; of the wings $1\frac{1}{2}$ line.

Found on the thistle from June till November.

90. *Aphis Jacobææ*, Schrank.

Aphis Jacobææ, Schrank, Faun. Boic. ii. 123. 1242; Kalt. Mon. Pfl. 68. 49.

Found on *Senecio Jacobææ* in the summer.

The viviparous wingless female. The body is rather small, oval, convex, deep black: the limbs are also black: the feelers are some-

what shorter than the body : the mouth is dull green at the base : the nectaries are as long as one-fifth of the body : the legs are of moderate length : the fore-thighs are dull green at the base. When very young it is linear, and dark green.

The viviparous winged female. In colour it resembles the winged *Aphis* : the wings are slightly tinged with gray, and are longer than the body ; the wing-ribs are dull yellow ; the brands and the veins are black.

91. *Aphis Helichrysi*, Kaltentbach.

Aphis Helichrysi, Kalt. Mon. Pflanz. i. 102. 77.

A. Balsamitæ, Müll. Zool. Dan. Prodr. 109. 1262.

This little *Aphis* feeds on *Helichrysum chrysanthum*, *Balsamita suaveolens*, *Anthemis tinctoria*, *A. Matricaria*, *Achillæa Ptarmica*, *A. Millefolium*, *Senecio vulgaris*, *Myosotis*.

The viviparous wingless female. The body is oval : the front is somewhat convex and slightly serrated : there are no tubercles at the base of the feelers, which are setaceous, and rather less than half the length of the body ; the fourth joint is much shorter than the third, but more than half its length ; the fifth is a little shorter than the fourth, and the sixth has the same proportion to the fifth ; the seventh is fully as long as the third, and much more slender than the other joints : the nectaries are about one-fifteenth of the length of the body : the legs are rather short, pale green. The young ones in its body amount to twelve and upwards.

The viviparous winged female. While a pupa it is nearly elliptical, slightly convex, grass-green, rather smaller than *A. Dianthi* : the feelers are pale green with brown tips, and hardly half the length of the body : the eyes are dark brown : the mouth is pale green with a brown tip : the nectaries are dark green, not more than one-twelfth of the length of the body : the legs are dull green, rather short ; the feet are brown.

When the wings are unfolded the body is green : the head and the disc of the chest are dark : the feelers are black excepting the base, and more than half the length of the body : the legs are yellow ; the feet, and the tips of the thighs and of the shanks are dark green : the wings are colourless, and much longer than the body ; the bend of the rib-vein between the angle where it sends forth the fourth vein and its tip is shorter than in *A. Tanacetina*, and the fourth vein is more curved ; the third vein is forked a little after one-third and again a little after two-thirds of its length ; the second vein is very nearly parallel to the lower part of the third vein ; the first vein is nearer at its source to the second than the second is to the third, but it diverges more at the tip. In the wings of *Aphides* the third vein has in its upper division a

course conformable or parallel to the fourth vein, while the direction of its lower division agrees with that of the second vein.

92. *Aphis Tanacetina*, n. s.

The viviparous wingless female. The body is elliptical, convex, yellowish green: the front is slightly convex, not notched: the feelers are setaceous, and rather less than half the length of the body; the first and the second joints have no angles; the fourth joint is much shorter than the third, but more than half its length; the fifth is a little shorter than the fourth, and the sixth has the same proportion to the fifth; the seventh is nearly as long as the third; the tips of the joints are brown: the tip of the abdomen is not compressed, but rounded, and has no tube: the nectaries are linear, and as long as one-sixth of the body: the legs are rather short; the feet are brown. The young ones which it contains exceed twelve in number.

The viviparous winged female. It resembles the wingless insect, but is darker about the head and about the chest: the feelers are brown excepting the base, and a little shorter than the body: the tips of the nectaries are brown: the wings are colourless and very much longer than the body; the brand has a distinct angle where it sends forth the fourth vein, and the distance thence to its tip is about one-fifth of its whole length, and less than half the space between the tip of the brand and the tip of the fourth vein: the fourth vein is moderately curved at the base, and nearly straight towards the tip; the third springs from the brand at one-fifth of the length of the latter, and is forked before one-third and again a little after two-thirds of its length; the second and the third veins are nearer to each other at the base than are the third and the fourth; the first and the second are still nearer to each other than are the second and the third, but they diverge more before they reach the hind-border. Found in August on *Tanacetum vulgare*.

Length of the body $\frac{2}{5}$ line; of the wings $1\frac{1}{2}$ line.

Variations in the wing-veins.—1st var. The third vein has its first fork long after one-third and its second a little after two-thirds of its length.

2nd var. The third vein sends forth its first fork at half its length, and it has no lower branch to its second fork.

The oviparous wingless female. This much resembles the viviparous wingless female, but the hind-shanks are somewhat wide, and rather darker than the rest. It appears in the middle of October.

93. *Aphis Cratægaria*, n. s.

The viviparous wingless female. The body is oval, convex, yellowish green, smooth, shining: the feelers are pale yellow, slender,

setaceous, brown towards the tips, longer than the body : the eyes are red : the mouth is pale yellow with a brown tip : the nectaries are yellow with brown tips, and about one-fourth of the length of the body : the legs are pale yellow, long and slender ; the feet and the tips of the shanks are brown : when young it is grass-green, paler beneath : the head is yellowish : the feelers are about half the length of the body, and the nectaries are one-fifth of its length ; their tips are brown. Before the end of April.

The viviparous winged female. The body is rather large and grass-green : the head and the disc of the chest and that of the breast are reddish brown : there is a row of black spots on each side of the abdomen : the eyes and the feelers are dark brown, and the latter are a little longer than the body : the mouth is pale green with a brown tip : the nectaries are pale green, and as long as one-fourth of the body : the legs are long, and pale yellow ; the feet, and the tips of the thighs and of the shanks are brown : the wings are colourless ; the wing-ribs are pale yellow ; the brands are very pale brown ; the veins are brown.

1st var. The feelers and the eyes are black, and the former are dull green at the base : the tip of the mouth is black : the legs are pale green ; the knees, the feet, and the tips of the shanks are black : the wing-ribs are pale green.

94. *Aphis Cratægi*, Kalténbach.

Aphis Cratægi, Kalt. Mon. Pflân. 66. 47.

The viviparous winged female. While a pupa it is gray and nearly elliptical : the eyes and the feelers are black, and the latter are rather less than half the length of the body : the mouth is gray : the breast is dull red : the nectaries and the legs are gray, and the former are hardly one-twelfth of the length of the body. When the wings are unfolded it is black : the feelers are much shorter than the body : the mouth is dull yellow with a black tip : the legs are black ; the thighs at the base, and the shanks except their tips are yellow : the wings are colourless, and much longer than the body ; the wing-ribs are almost white ; the brands are dull pale yellow ; the veins are brown.

95. *Aphis Hederae*, Kalténbach.

Aphis Hederae, Kalt. Mon. Pflân. i. 89. 65.

A. Ilicis, Kalt. Mon. Pflân. i. 88. 64.

It feeds on *Hedera helix* and *Ilex aquifolium*.

The viviparous wingless female. The body is oval, convex, plump, pale green, covered with white powder : the feelers are white, pale brown at the base and at the tips, and much shorter

than the body ; the fourth joint is much shorter than the third ; the fifth is a little shorter than the fourth ; the sixth is full half the length of the fifth ; the seventh is rather longer than the fifth : the eyes are black : the mouth is white with a brown tip : the nectaries are black, and about one-twelfth of the length of the body : the legs are of moderate length ; the thighs are pale green ; the shanks are white ; their tips and the feet are brown.

BIBLIOGRAPHICAL NOTICES.

An Elementary Course of Geology, Mineralogy, and Physical Geography. By D. T. ANSTED, M.A., F.R.S. &c. 8vo. London : Van Voorst.

IT is unnecessary at the present day to enlarge upon the advantages of geological science ; relieved from the prejudices which affected its early progress, and soaring above the mere attempt to excite our wonder by descriptions of the singular and apparently grotesque forms of animals, which were once the denizens of our planet, it has become a science not only of many valuable truths, but as a means of enlarging our views of those universal laws by which the physical history of the earth has been governed. The certainty of its facts and their practical applications have rendered a knowledge of it essential to all those engaged in the varied pursuits of mining, engineering and agriculture. A science intimately connected with our mineral wealth and commercial prosperity, could not fail to be recognized and supported by the Government, and the result is the establishment of the Museum of Practical Geology, under the management of Sir H. De la Beche and its efficient corps of officers both in the cabinet and the field. Already has this institution yielded the first fruits of its practical utility, and given a greater impetus and infused a spirit of inquiry into the general principles of the science, and we do not doubt that when the enlarged views of its able and zealous director are fully developed, geology will become still more popular amongst all classes. Taught as a subject of special instruction in our Universities and Colleges, its importance has not been overlooked in those smaller academies, where the teachers, fully aware of the real principles of education—that of imbuing the mind with a knowledge of facts and their bearing on the practical purposes of life—have, without neglecting the classical studies, judiciously introduced a course of instruction in natural and physical science. Introductory works are therefore requisite, not as simply teaching the facts of geology itself, but as embracing a wider field and yet presenting in a condensed form, its intimate connexion with and dependence upon other branches of knowledge. In this respect the volume before us is extremely useful, nor could we anticipate that Prof. Ansted's constant practice as a teacher and lecturer would fail to assist him in producing an educational manual serviceable alike for the traveller or student, more especially as the general plan of the work,